THIS IS ONE VOLUME OF A SIX VOLUME SET WHICH INCLUDES:

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Procedure Number 5-21000-OPS AP .04, R1

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Title	Date	PCN Number
Effluent Air Radioparticulate Sampler Calibration Check	11/20/91	AP.04-91-01

URGENT Expires: 2/18/92

TEMPORARY Expires: _____

Item Number	Page	Step or Paragraph	Changes (Use PCN CONTINUATION SHEET for additional space)
1.	7	7.2.4	Delete - the step "Don respiratory protection."

Justification (Reason for change - Provide numbers to reference corresponding items above.)

Samplers being calibrated are installed in the exhaust ducting venting to the atmosphere. This work is performed inside and ouside of process buildings. In some situations the sampling equipment is within a few feet of the exhaust duct opening.

Concurrence	Organization	Req.	Date	Concurrence	Organization	Req.	Date
[signature]	~~OAPM~~ EM/WM	X	11-21-91	F.L. Lambert	User	X	11/20/91
[signature]	H&S	X	11-20-91	R.G. Hoberl	"	X	11/20/91
[signature]	~~OA~~ WQE	X	11/21/91	M.B. Hunt	"	X	11/20/91
[signature]	FSE	X	11-20-91		Other		

13. Approval of Responsible manager	14. Date	15. Is Posting required?	16. If Yes, by what date	17. Date posted
Ralph Porter	11-21-91	(Yes) No	11-21-91	11-21-91

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EG&G ROCKY FLATS PLANT	Manual:	5-21000-OPS
EMD OPERATING PROCEDURE	Section:	AP.04, Rev. 0
MANUAL	Page:	1 of 14
	Effective Date:	09/15/91
Category 3	Organization:	EMD

Title:
EFFLUENT AIR RADIOPARTICULATE SAMPLER CALIBRATION CHECK

Approved By:
M. B. Lucas 9/13/91
Director, Environmental Management Date

1.0 PURPOSE

This procedure establishes the steps for checking the calibration of radioparticulate samplers at effluent air sampling locations. (See 5-21200-OPS AP.03 for a list of location numbers).

2.0 SCOPE

This procedure applies to site wide activities for checking the calibration of radioparticulate samplers at effluent air sampling locations.

3.0 REFERENCES

3.1 Source References

1. EG&G. Health and Safety Practices Manual. Rocky Flats Plant, Health and Safety.

2. EG&G. Health and Safety Plan Workbook. Rocky Flats Plant, Environmental Restoration. October 26, 1990.

3. EG&G. Radiological Operating Instructions.

REVIEWED FOR CLASSIFICATION
By G. A. MOSLER (U)
Date 9/13/91

(3.1) 4. EMD, "Quality Assurance Program Document," Rocky Flats Plant Environmental Management Department, (21000-QAPD).

3.2 Internal References

1. EG&G, Health and Safety Program Plan. Rocky Flats Plant, Environmental Restoration. October 26, 1990.

2. HSP 2.04, "Employees Working Alone."

3. HSP 6.07, "Radiation Work Permit."

4. HSP 18.02, "Personnel Contamination Control Requirements for Radiologically Controlled Areas."

5. HSP 18.08, "Use of Step-Off Pads and H&S Barrier Areas in Radiologically Controlled Areas."

6. HSP 18.09, ""Self Monitoring - Combo Hand-and-Foot Monitors and Alpha-Mets."

7. HSP 18.12, "Radioactive Contamination and Decontamination."

8. ROI 6.1, "Performance Tests and Operational Checks for Ludlum Model 12-1A and 31 Survey Instruments."

(3.2) 9. EMD Operating Procedures 5-21200-OPS-AP.03, "Effluent Air Radioparticulate Sample Collection."

4.0 TEST EQUIPMENT

4.1 Calibrated Kurz precision flow meter (Model 502).

5.0 PREREQUISITES

5.1 EMATs performing the work described in this procedure shall have received all training requirements and have a current building indoctrination for every building in which the work will be performed.

5.2 EMATs will receive on-the-job training and general instruction in the execution of this procedure.

5.3 Obtain equipment and supplies required for the sampler calibrations:

- Ludlum 12-1A instrument
- Kurz flow meter (Model 502)
- Red gauge oil (density 1 g/cm^3 ±5%)
- Surgeon's gloves
- Respiratory protection
- Respirator card
- Building indoctrination card
- Hazardous waste card
- Exemption badge for PA
- Effluent Calibration Worksheets

(5.3)

- Screwdriver
- Pliers
- Filter holder screw cap
- EMP-2000 particulate filters
- Brass ring filter holder
- Small adjustable wrench

6.0 LIMITATIONS AND PRECAUTIONS

6.1 Personnel performing this work shall be qualified Environmental Monitoring & Assessment Technologists (EMAT). EMD is responsible for the indoctrination and the hands-on environmental training and qualifications of the EMATs.

6.2 Two employees shall be present when the activities in this procedure are performed, if this requirement is mandated by security for the area or HSP 2.04, "Employees Working Alone." Only one of these employees must be a qualified EMAT.

6.3 Calibrate air samplers once each calendar quarter or whenever significant modifications to the exhaust system or effluent sampling equipment are made.

6.4 EMD shall specify in writing whenever deviations from the normal calibration frequency occur during holidays, shutdowns, or other nonroutine periods of operation.

6.5 During all activities, exercise due care to assure that the filter media is not damaged during performance of this procedure.

7.0 PROCEDURE

NOTE

1. A copy of ROI 6.1 will be required to complete this task.
2. Ensure that the Radiation Work Permit is completed before entering an RCA per HSP 6.07.

7.1 Calibration Preparation

7.1.1 Follow the calibration route designated by the EMD Program Manager when completing this task.

7.1.2 Obtain equipment and supplies.

7.1.3 Performance check a Ludlum 12-1A (ROI 6.1).

7.1.4 Check the calibration sticker on the Kurz flow meter, and verify that the flow meter calibration expiration date has not been exceeded.

7.1.4.1 If expired, obtain a calibrated Kurz Flow Meter.

7.1.4.2 If no calibrated Kurz Flow Meter is available, contact the EMD Program Manager for instructions.

7.1.5 Perform a battery check of the Kurz flow meter by placing the selector switch to the "Battery Check" position and verifying that the meter is within the operating range.

7.1.5.1 If battery check indicates the battery is low, replace the rechargeable battery, then repeat step 7.1.5.

7.1.5.2 Perform a battery check of the Kurz flow meter by placing the selector switch to the "Battery Check" position and verifying that the meter is within the operating range.

7.1.5.3 If the Kurz Flowmeter is still not functioning, obtain another Kurz Flowmeter if available, and go to step 7.1.4.

7.1.5.4 If no operable Kurz Flowmeter is available, contact EMD Program Manager for instructions.

7.2 Sampler Calibration

WARNING
Follow the H&S procedures for exiting a controlled area.

7.2.1 Go to the first/next building/location on the sample route utilizing existing security procedures to access controlled areas.

7.2.2 Change into company-furnished clothing per H&S Manual 18.02, as necessary, to satisfy clothing requirements.

7.2.3 Proceed to the first sampler location.

SEE PCN AP.04-91-C1

~~7.2.4 Don respiratory protection. (This step may be done prior to this point.)~~

7.2.5 Don surgeon's gloves or change surgeon's gloves, as necessary.

7.2.6 Performance check Ludlum instrument to verify that the instrument is functioning properly. (Per ROI 6.1). If not functioning properly, obtain another instrument.

7.2.7 Unscrew the filter holder cap, and separate the holder exposing the particulate filter.

7.2.8 Using the Ludlum's probe, check the particulate filter for radioactive contamination.

CAUTION

When removing the sample media from the samplers, exercise extreme care and avoid touching the particulate filter and risking cross-contamination or damaging the filter.

7.2.9 Remove the brass ring and particulate filter from the sample holder.

7.2.10 Check hands for possible contamination and change surgeon's gloves as necessary.

7.2.11 Install a new particulate filter and brass ring into the sample holder.

CAUTION

Use due care in tightening the holder to ensure that the filter is not damaged.

7.2.12 Screw the extra filter holder cap onto filter holder body that holds the new filter.

7.2.13 Check hands on the Ludlum instrument for possible radioactive contamination and change surgeon's gloves if necessary.

7.2.14 Turn the Kurz flow meter selector switch to "operate" and check that it "zeros." (Adjust zero as necessary).

7.2.15 Attach the flow meter adapter to the filter cap holder.

7.2.16 Visually read the sampler flow rate on the Kurz flow meter.

7.2.17 Record the "as found" flow rate on the Effluent Calibration Worksheet.

7.2.18 Close the flow control valve.

7.2.19 Visually note the U-tube manometer oil level (based on the bottom of the minicus).

7.2.20 Record the manometer oil level on the Effluent Calibration Worksheet.

7.2.21 Obtain a zero reading on the manometer scale (±0.5 scale division) by adjusting the scale up or down as required.

7.2.21.1 To adjust the manometer scale, loosen the manometer scale set screw with a screwdriver.

7.2.21.2 Move the scale up or down until the zero position on the scale is level with the oil in the U-tube.

7.2.21.3 If the zero on the manometer scale cannot be leveled with the oil in the U-tube, add Red gauge oil to the U-tube until a zero reading can be obtained.

7.2.21.4 Note on the Effluent Calibration Worksheet that gauge oil was added to the manometer.

7.2.21.5 Tighten the set screw with a screwdriver.

7.2.22 Slowly open the flow control valve until a meter reading between 55 and 60 lpm is obtained.

7.2.23 Visually note the manometer oil level which corresponds to the sample flow rate of 55 to 60 lpm, then record the manometer oil level on the Effluent Calibration Worksheet.

7.2.24 Fill out an Effluent Calibration Label. The required information includes building number, sampler location, date, EMAT's employee number or signature, and manometer oil level.

7.2.25 Affix the Effluent Calibration Label on the wall adjacent to the manometer.

7.2.26 Turn off the Kurz flow meter.

7.2.27 Remove the adapter from the filter cap.

7.2.28 Remove the brass ring and particulate filter installed earlier, then discard filter and return the brass ring to supplier.

7.2.29 Install the original particulate filter/brass ring that was removed during the calibration.

7.2.29.1 Inspect particulate filter. If the filter is damaged, note that fact on the traveler as a comment.

7.2.29.2 If the filter is damaged, place the particulate filters into glassine envelopes and submit to the lab for analysis in a manner consistent with 5-21200-OPS-AP.03.

7.2.29.3 If the filter is damaged, record the sample location number on a new filter and use this filter to replace the one in the brass ring.

7.2.29.4 If the filter was damaged install the new particulate filter and brass ring into the sample holder with the location number visible. Repeat this section (steps 7.2.29.1 to 7.2.29.4), as necessary to assure that current filter is undamaged.

CAUTION

Use due care in tightening the holder to ensure that the filter is not damaged.

7.2.30 If the filter has been damaged in this process, go to step 7.2.29.1; otherwise screw the sample holder cap and sampler holder body together.

7.2.31 Visually inspect the sampling apparatus to ensure it is in good operating condition and that O-rings and grids are properly positioned. Document any problem in comment section of the Effluent Calibration Worksheet.

7.2.32 Screw the original filter holder cap and filter holder together.

7.2.33 Note any problems with the calibration on the Effluent Calibration Worksheet in the comments column.

7.2.34 Proceed to the next sampler location.

7.2.35 Repeat the steps from going to the building/location (Step 7.2.4) on the sample route through proceeding to the next sampler location (Step 7.2.34), until all samplers have been calibrated.

7.3 Documentation

7.3.1 Complete the Effluent Calibration Worksheets to document the calibration activities of radioparticulate samplers at effluent air sampling locations. (The worksheet number is typically "ECW", your initial, then a dash and finally the date. The date should be in a MMDDYY format.)

7.3.2 After the samplers have been calibrated, copy and deliver the original Effluent Calibration Worksheets to the EMD Program Manager.

7.3.3 Place a copy of the worksheet in the EMAT file cabinet.

8.0 Disposition

8.1 If the calibration check for any sampler cannot be completed as specified in Section 7.2, inform the EMAT Manager. The EMAT Manager shall immediatly initiate a work request in accordance with the IWCP.

8.2 The signatures on the Effluent Calibration Worksheets verify accurate completion of the critical portions of procedure. The responsible EMD staff member will sign the worksheet after verifying the successful completion of the activity and the accuracy of the worksheet. The EMD staff member will then submit a copy of this QA Record to the EMD record center.

Attachment 1

Calibration Sticker

Location: _____

Monitor: _____

Date Calibrated: _____

2cfm = 56 l/m

Adjust oil top at ____ on Dwyer Gauge

Attachment 2

Effluent Calibration Worksheet

Worksheet # AECR--

DATE: _____
EMAT: _____

LOCATION	FLOW "AS FOUND" (sipm)	ADJUST MANOMETER ZERO? (Y/N)	ADDED OIL? (Y/N)	MANOMETER OIL LEVEL	COMMENTS

DISTRIBUTION
EMAT File
EMAD
QA Records

Approved by:

_____ _____
Signature Date

85600126.011